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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/644,012	08/22/2000	Michael J. Davis	LT1101	1283

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EXAMINER

JACKSON, MONIQUE R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/644,012	Applicant(s) DAVIS ET AL.	
	Examiner Monique R Jackson	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-35 and 37 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 and 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 16-18 and 20-27 is/are rejected.
- 7) ☒ Claim(s) 19 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/5/04 has been entered.
2. Claims 1-6, 8-35 and 37 are pending in the application. Claims 11-15 and 28-35 have been withdrawn from consideration. The Examiner notes that the Listing of the Claims submitted on 4/5/04 incorrectly showed Claim 6 as "Canceled" and Claim 7 as "Original" but that in the Arguments section, the Applicant correctly states that Claims 1-6, 8-35 and 37 are pending in the application. The Examiner believes that Claims 6 and 7 were transposed in the response filed 4/5/04 and hence, the Examiner will treat them accordingly in the interest of compact prosecution.

Claim Rejections - 35 USC § 112

3. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites the limitation "adhesive of Claim 19, wherein the polyvinyl butryal" however Claim 19 recites that the toughening agent is "poly(vinyl butyral-co-vinyl acetate) resin or partially hydrolyzed poly(vinyl butyral-co-vinyl acetate) resin". Though Claim 19 recites copolymers of vinyl butyral, it does not recite "polyvinyl butyral" - a homopolymer of vinyl butyral as the term is accepted in the art and hence the claim lacks antecedent basis.

Claim Rejections - 35 USC § 103

4. Claims 1-6, 8-10, 16-18, 21-22, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 921 158 in view of Haff et al (USPN 4,196,116) or Ostermayer et al (USPN 4,948,832.)

5. EP'158 teaches poly(phenylene ether)(PPE) thermoset compositions comprising PPE, an allylic compound, at least one of a brominated epoxy compound and a mixture of a brominated and non-brominated epoxy compound, and at least one of a cure catalyst or a curing agent wherein the compositions are curable and flame resistant (Abstract.) The PPE has a number average molecular weight of from about 3,000 to about 15,000 g/mol and is preferably poly (2,6-dimethyl-1,4-phenylene ether) or poly(2,6-dimethyl-1,4-phenylene-co-2,3,6-trimethyl-1,4-phenylene ether) which read on the instantly claimed poly(arylene ether) resins and wherein the low molecular weight PPE resin can be formed by reacting high molecular weight resin with a peroxide (Page 3, line 5-Page 7, line 18.) The epoxy or the brominated epoxy compounds taught by EP'158 include those as instantly claimed including the condensation product of a bisphenol polyglycidyl ether, such as diglycidyl ether of bisphenol A or F, and a bromine-substituted bisphenol, such as tetrabromobisphenol A as in instant Claims 8 and 9, wherein the brominated epoxy component(s) are utilized to impart sufficient flame retardancy to the thermoset resin and hence it is preferred that the brominated epoxy components be used at levels such that the total bromine content exceeds about 10% by weight of the curable composition, more preferably at levels exceeding about 10% by weight of the poly(phenylene ether) (Page 7, line 50-Page 9, line 9.) EP'158 further teach that the composition may comprise additional additives such as fire retardant additives, fillers, plasticizers, colorants, and

additional thermoset or thermoplastic resin additives for the purpose of improving properties such as toughness, impact strength or thermal stability (Page 9, line 28-39.) EP'158 teach that preferred embodiments comprise PPE in an amount of from about 2 to about 60 percent by weight of the total composition; the allylic compound in an amount of from about 40 to about 80 percent by weight of the total composition; at least one of a brominated epoxy compound and a mixture of a brominated and non-brominated epoxy compound in an amount of from about 0.01 to about 50 percent by weight of the total composition; and a cure catalyst or curing agent in an amount from 0.01 to 6% by weight of the total composition (Page 3, lines 21-28; Claim 2.) EP'158 further teach that the brominated epoxy compound comprises from about 0.01 to about 40% by weight of the total composition (Claim 5.) EP'158 also teaches that the allylic compound is preferably a triallyl cyanurate, triallyl isocyanurate, diallyl phthalate or an allyl glycidyl ether (Claim 10.) EP'158 teach specific examples of the curable composition wherein the weight percentages of the components fall within the instantly claimed ranges particularly given that the instantly claimed invention comprises components so broadly defined that they read upon one another.

6. Though EP'158 teach that the curable composition can further comprise a toughening agent or a plasticizer, EP'158 does not specifically teach the toughening agents as instantly claimed in an amount as claimed. However, styrene butadiene block copolymers are obvious species of toughening agents utilized which are suitable in the art for providing toughening properties to similar curable compositions as taught by Haaf et al (Abstract; Col. 2; Col. 5, line 22-Col. 6, line 20) or Ostermayer et al (Col. 3, lines 3-34.) Therefore, one having ordinary skill in the art at the time of the invention would

have been motivated to utilize any conventional toughening agent known in the art including styrene-butadiene-styrene block copolymers as taught by Haaf et al or Ostermayer et al in an amount necessary to provide the desired toughening properties for a particular end use.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 921 158 in view of Haaf et al or Ostermayer et al and in further view of Lee, Jr. (USPN 5,397,822.) The teachings of EP'158 are discussed above. Though EP'158 teach that the polyphenylene ether composition can further comprise a plasticizer, EP'158 does not specifically teach the plasticizers as instantly claimed however it is well established in the art that phosphate compounds are conventionally utilized in the art as plasticizers, wherein Lee specifically teaches that organic phosphates including those as instantly claimed are suitable plasticizers in polyphenylene ether compositions (Abstract; Col. 8.) Therefore, one having ordinary skill in the art would have been motivated to include these conventional plasticizers in an amount necessary to provide the desired plasticizing effect for a particular end use of the composition taught by EP'158.

Response to Arguments

8. Applicant's arguments filed 4/5/04 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

9. Claims 19 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 20 would be allowable if rewritten to

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overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the closest prior art EP'158 to Yeager et al teach a polyphenylene ether composition similar to the instantly claimed composition but does not teach or render obvious the incorporation of poly(vinyl butyral-co-vinyl acetate) resin or partially hydrogenated poly(vinyl butyral-co-vinyl acetate) resin as a toughening agent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Monique R. Jackson
Primary Examiner
Technology Center 1700
June 10, 2004